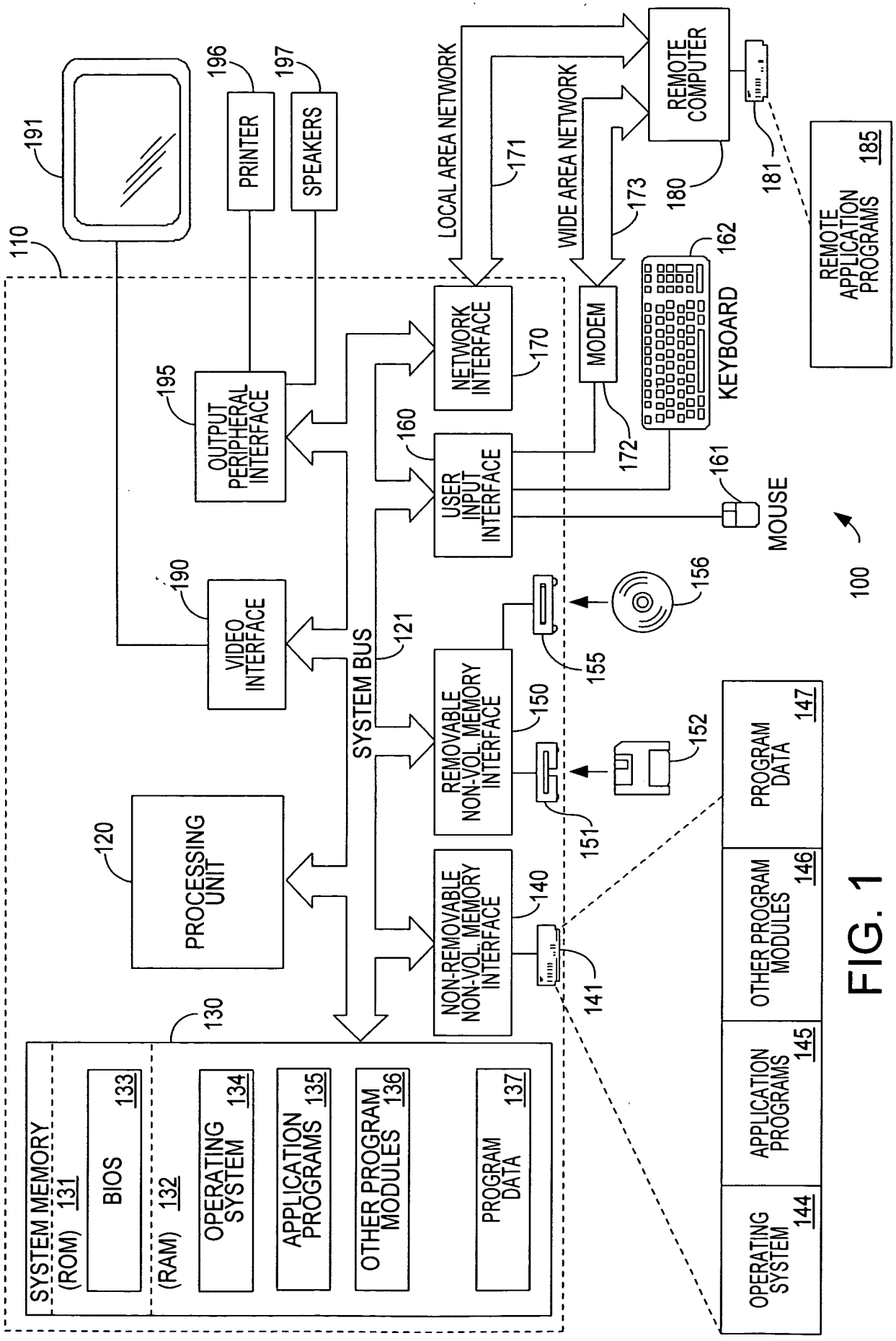

100
110
120
130
SYSTEM MEMORY
(ROM) 131
BIOS 133
(RAM) 132
OPERATING SYSTEM 134
APPLICATION PROGRAMS 135
OTHER PROGRAM MODULES 136
PROGRAM DATA 137
PROCESSING UNIT
SYSTEM BUS 121
VIDEO INTERFACE 190
OUTPUT PERIPHERAL INTERFACE 195
NETWORK INTERFACE 170
USER INPUT INTERFACE 160
MODEM 172
REMOVABLE NON-VOL. MEMORY INTERFACE 150
NON-REMOVABLE NON-VOL. MEMORY INTERFACE 140
LOCAL AREA NETWORK 171
WIDE AREA NETWORK 173
REMOTE COMPUTER 180
REMOTE APPLICATION PROGRAMS 185
181
191
PRINTER 196
SPEAKERS 197
KEYBOARD 162
MOUSE 161
155
156
151
152
141
OPERATING SYSTEM 144
APPLICATION PROGRAMS 145
OTHER PROGRAM MODULES 146
PROGRAM DATA 147

FIG. 1

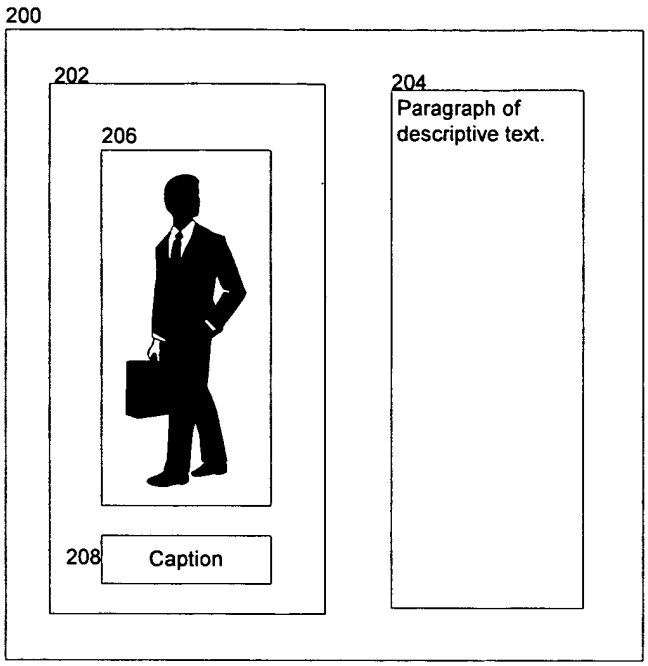

200
202
206
208
Caption
204
Paragraph of descriptive text.

FIG. 2a

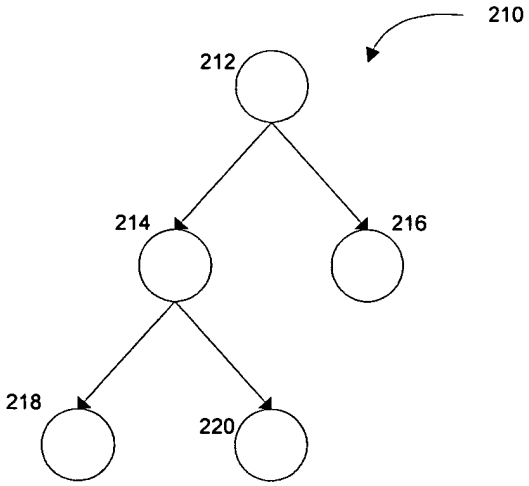

210
212
214
216
218
220

FIG. 2b

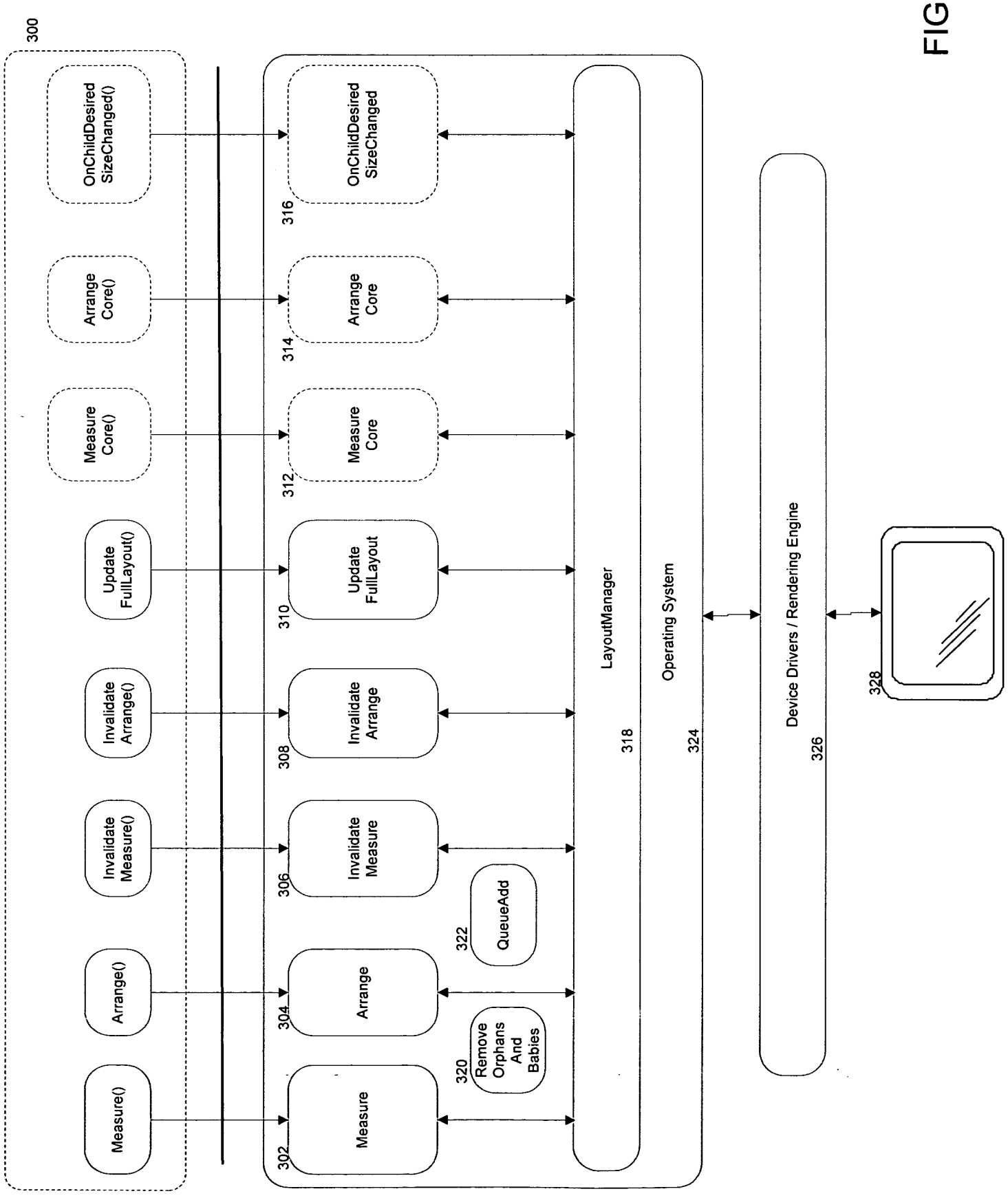

300
OnChildDesired SizeChanged()
Arrange Core()
Measure Core()
Update FullLayout()
Invalidate Arrange()
Invalidate Measure()
Arrange()
Measure()
316
OnChildDesired SizeChanged
314
Arrange Core
312
Measure Core
310
Update FullLayout
308
Invalidate Arrange
306
Invalidate Measure
322
QueueAdd
304
Arrange
320
Remove Orphans And Babies
302
Measure
LayoutManager
318
Operating System
324
Device Drivers / Rendering Engine
326
328

FIG. 3a

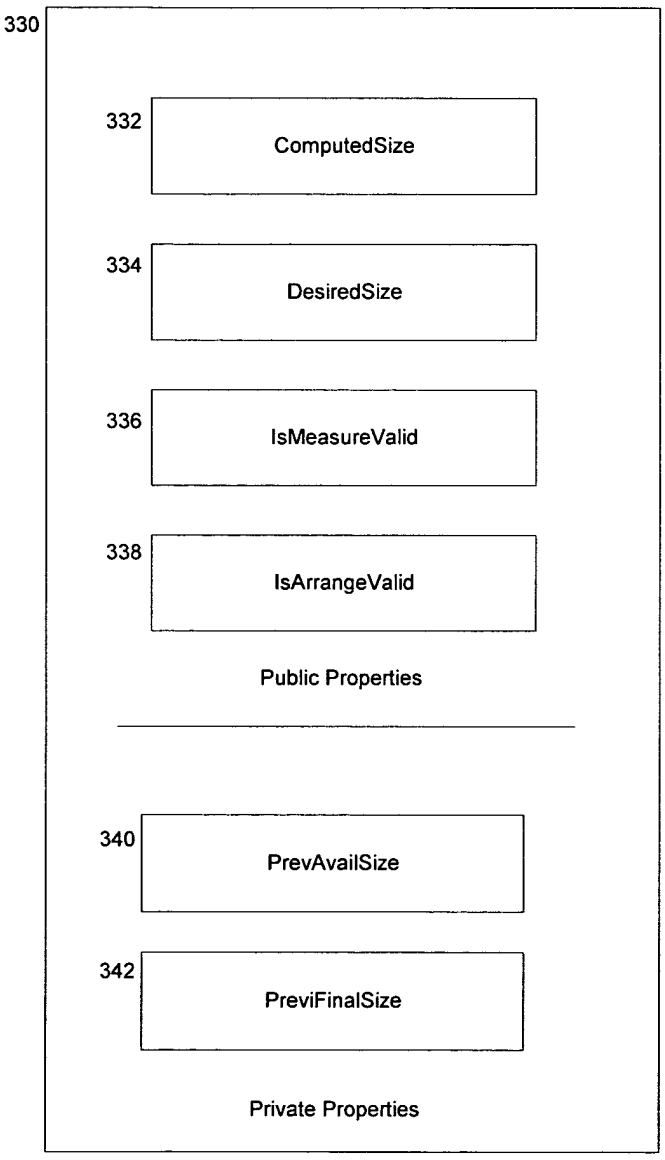

330
332
ComputedSize
334
DesiredSize
336
IsMeasureValid
338
IsArrangeValid
Public Properties
340
PrevAvailSize
342
PreviFinalSize
Private Properties

FIG. 3b

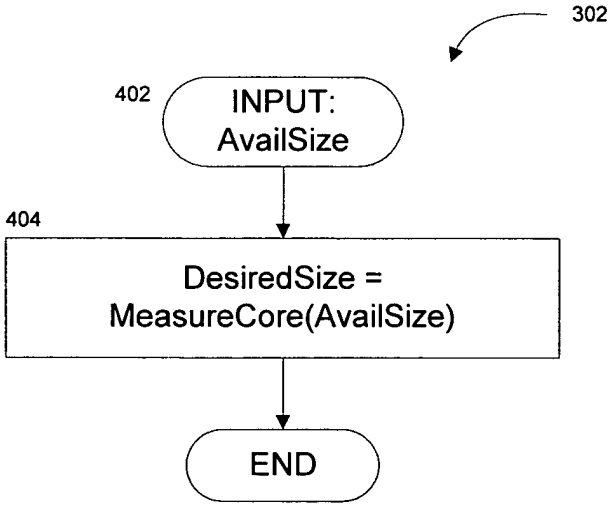

302
402
INPUT:
AvailSize
404
DesiredSize =
MeasureCore(AvailSize)
END

FIG. 4

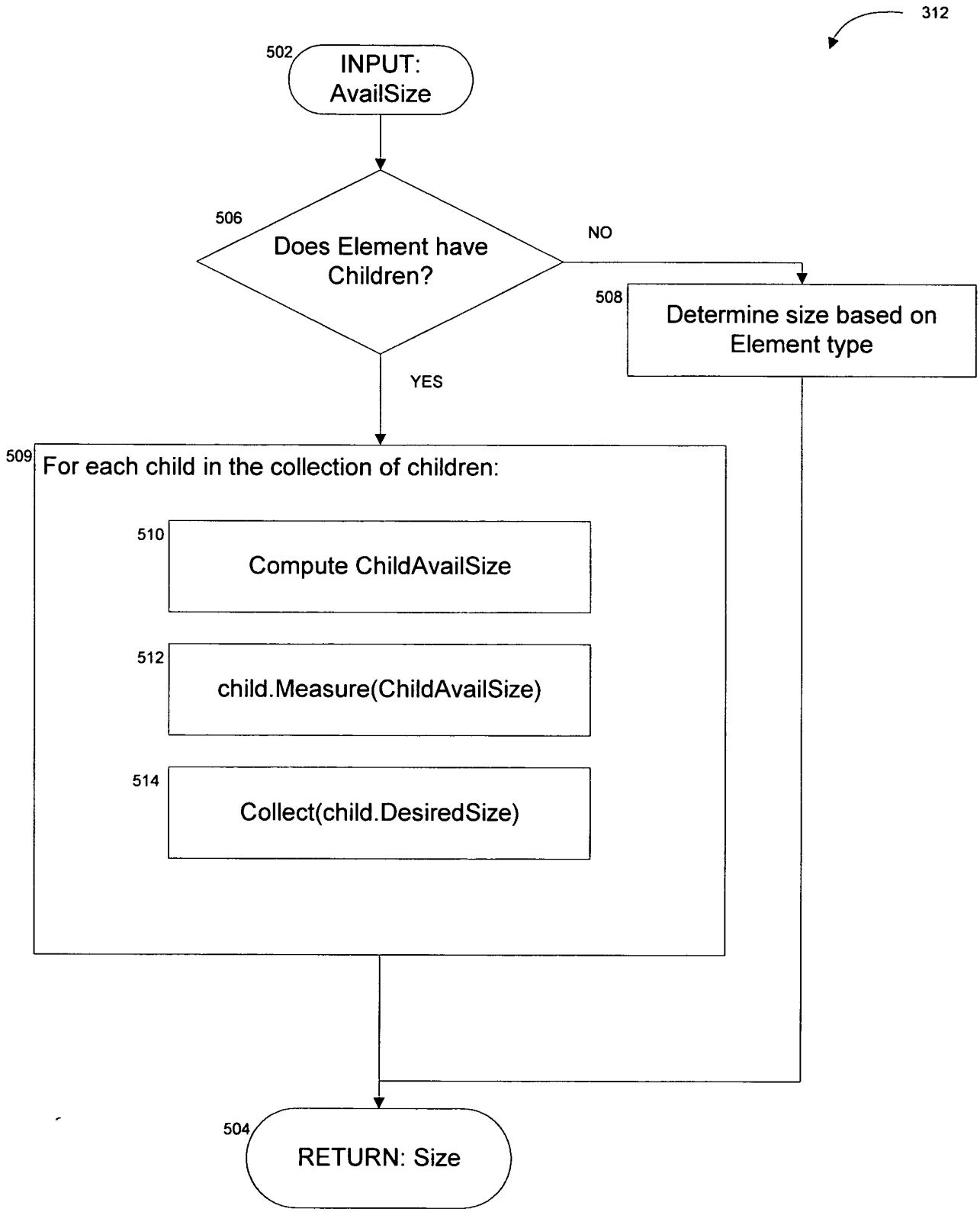

312
502
INPUT: AvailSize
506
Does Element have Children?
NO
508
Determine size based on Element type
YES
509
For each child in the collection of children:
510
Compute ChildAvailSize
512
child.Measure(ChildAvailSize)
514
Collect(child.DesiredSize)
504
RETURN: Size

FIG. 5

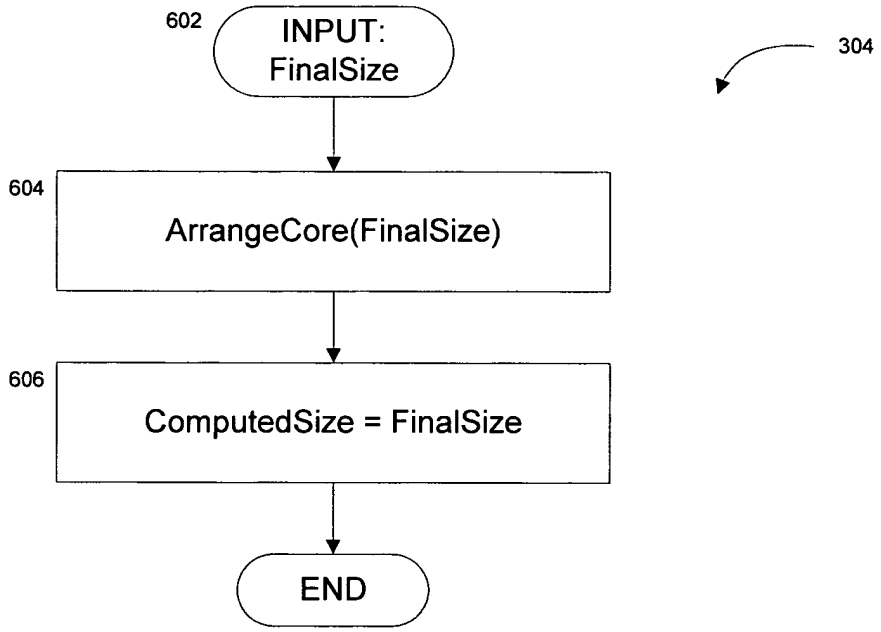

602
INPUT:
FinalSize
304
604
ArrangeCore(FinalSize)
606
ComputedSize = FinalSize
END

FIG. 6

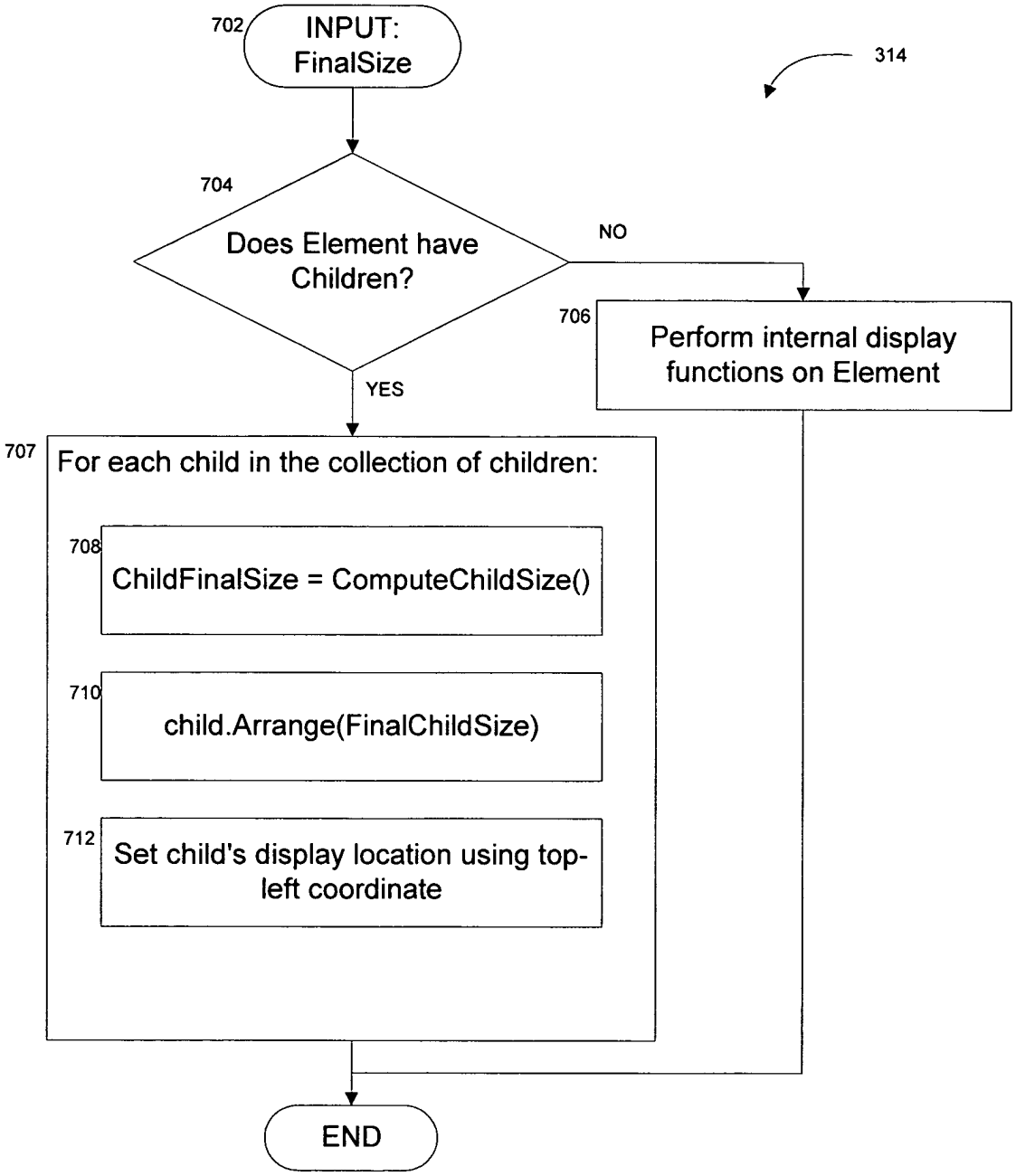

702
INPUT: FinalSize
314
704
Does Element have Children?
NO
706
Perform internal display functions on Element
YES
707
For each child in the collection of children:
708
ChildFinalSize = ComputeChildSize()
710
child.Arrange(FinalChildSize)
712
Set child's display location using top-left coordinate
END

FIG. 7

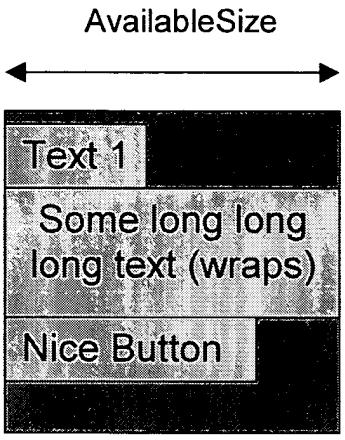

AvailableSize
Text 1
Some long long long text (wraps)
Nice Button

FIG. 8a

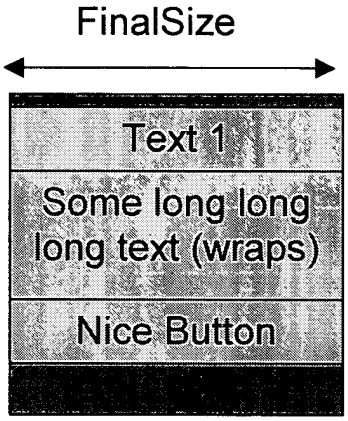

FinalSize
Text 1
Some long long long text (wraps)
Nice Button

FIG. 8b

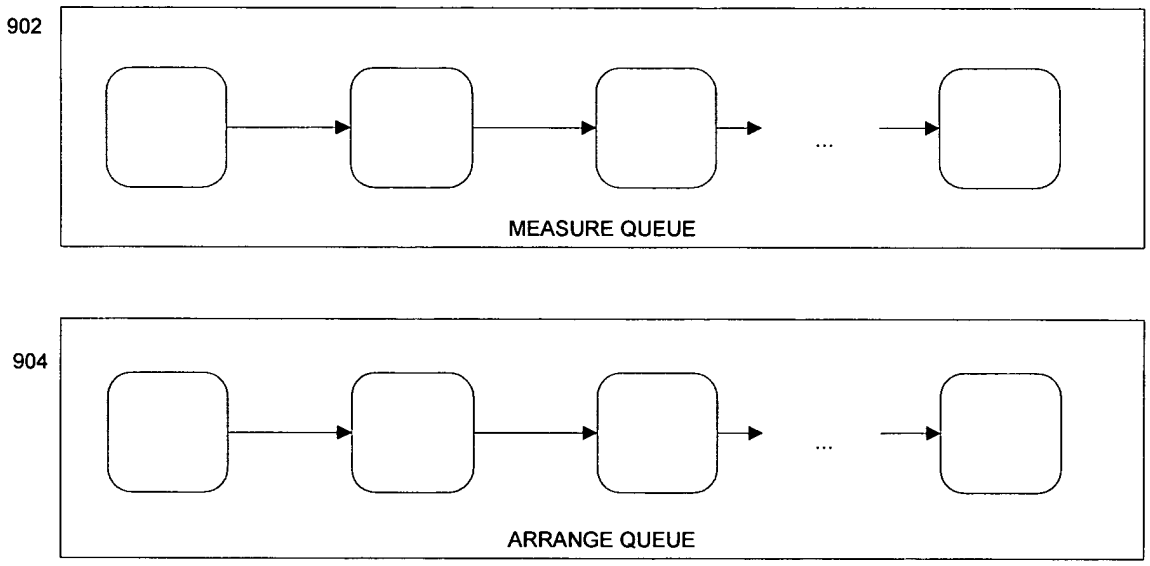
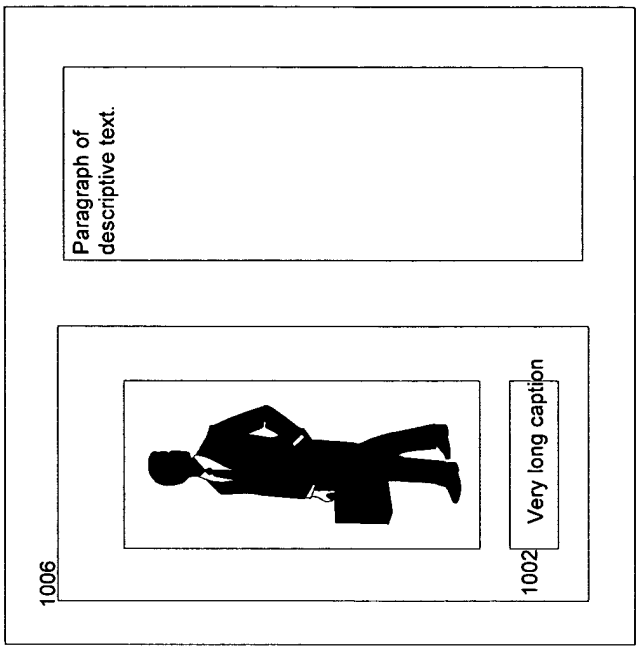


FIG. 9



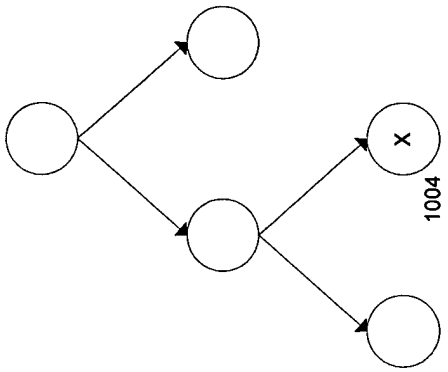
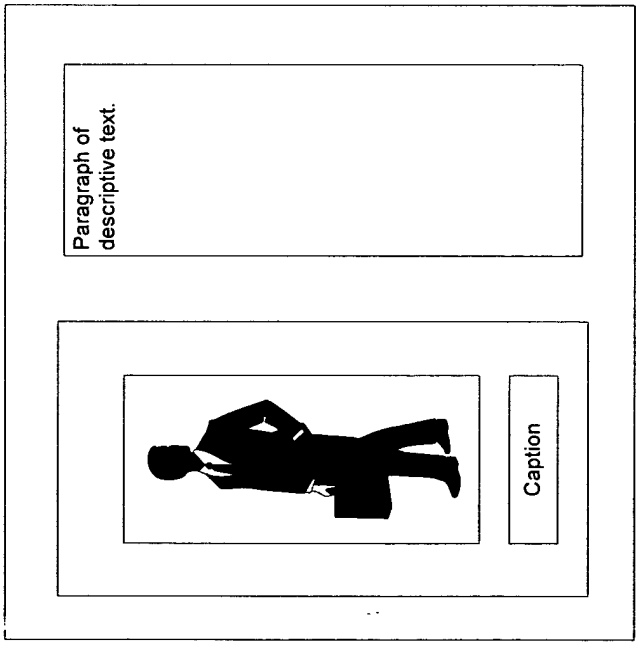


FIG. 10b



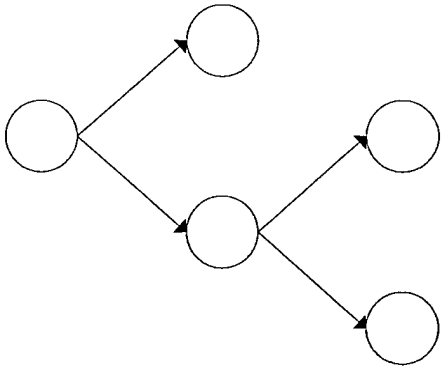


FIG. 10a

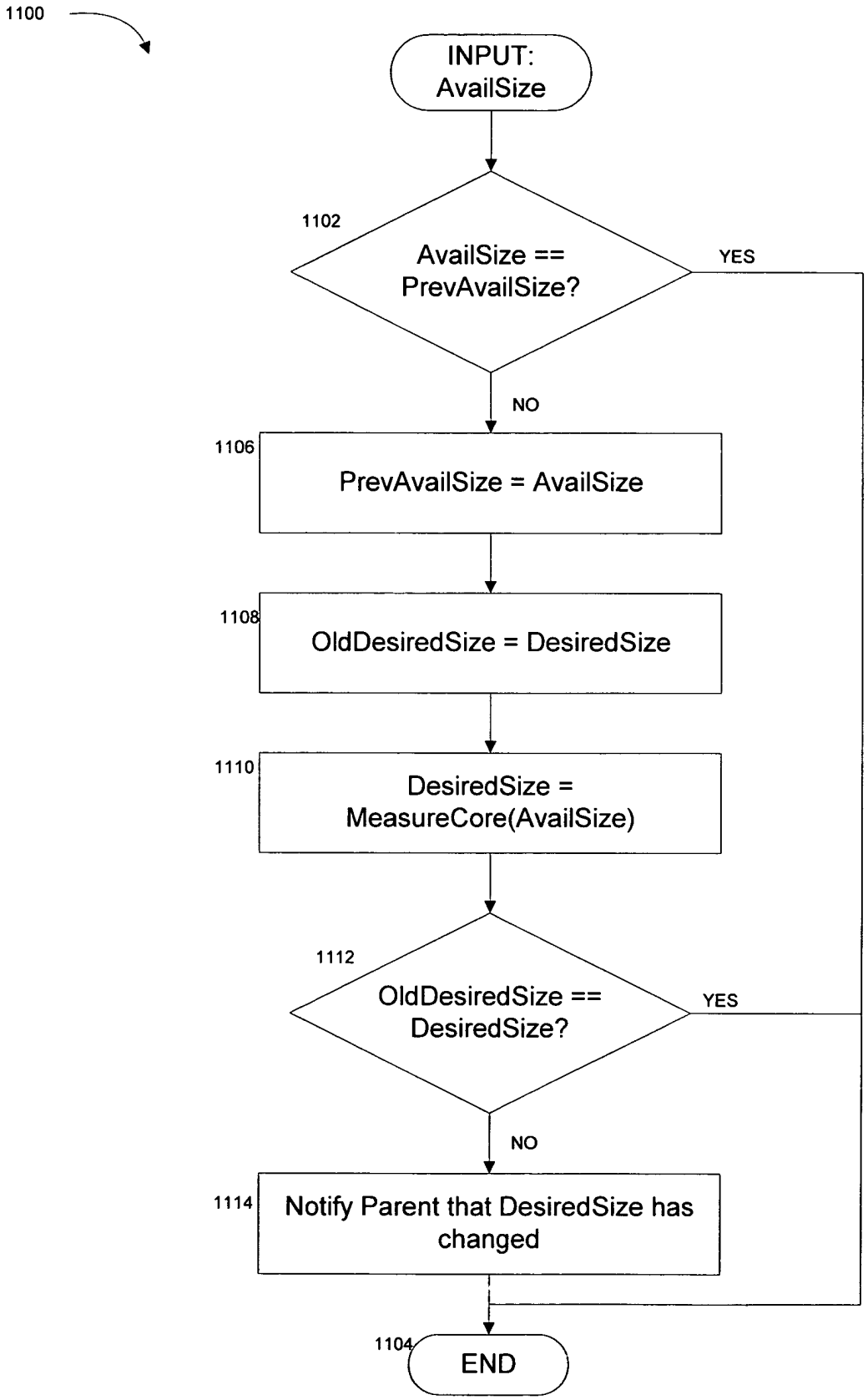

1100
INPUT: AvailSize
1102
AvailSize == PrevAvailSize?
YES
NO
1106
PrevAvailSize = AvailSize
1108
OldDesiredSize = DesiredSize
1110
DesiredSize = MeasureCore(AvailSize)
1112
OldDesiredSize == DesiredSize?
YES
NO
1114
Notify Parent that DesiredSize has changed
1104
END

FIG. 11

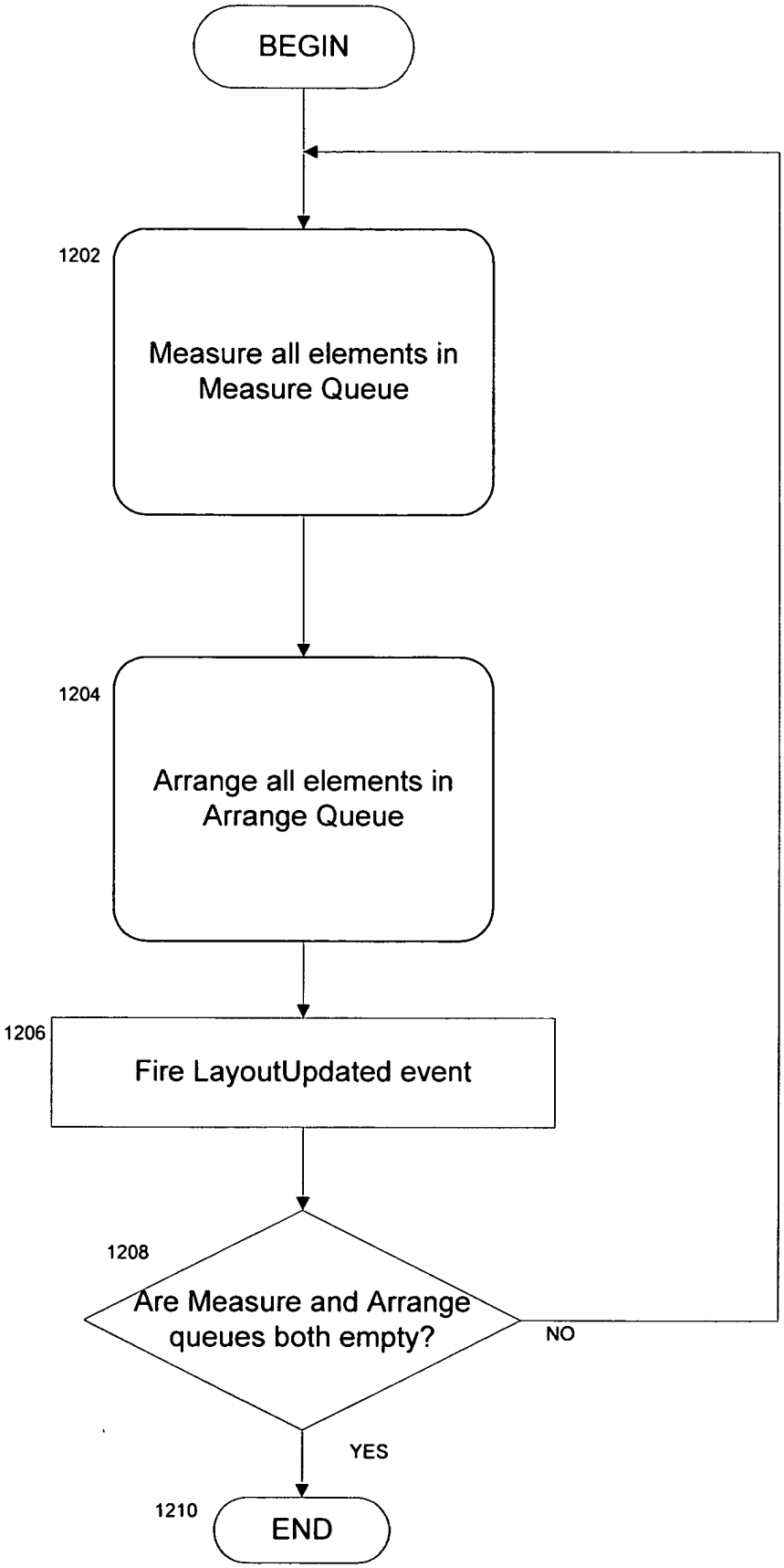

BEGIN
1202
Measure all elements in Measure Queue
1204
Arrange all elements in Arrange Queue
1206
Fire LayoutUpdated event
1208
Are Measure and Arrange queues both empty?
NO
YES
1210
END

FIG. 12

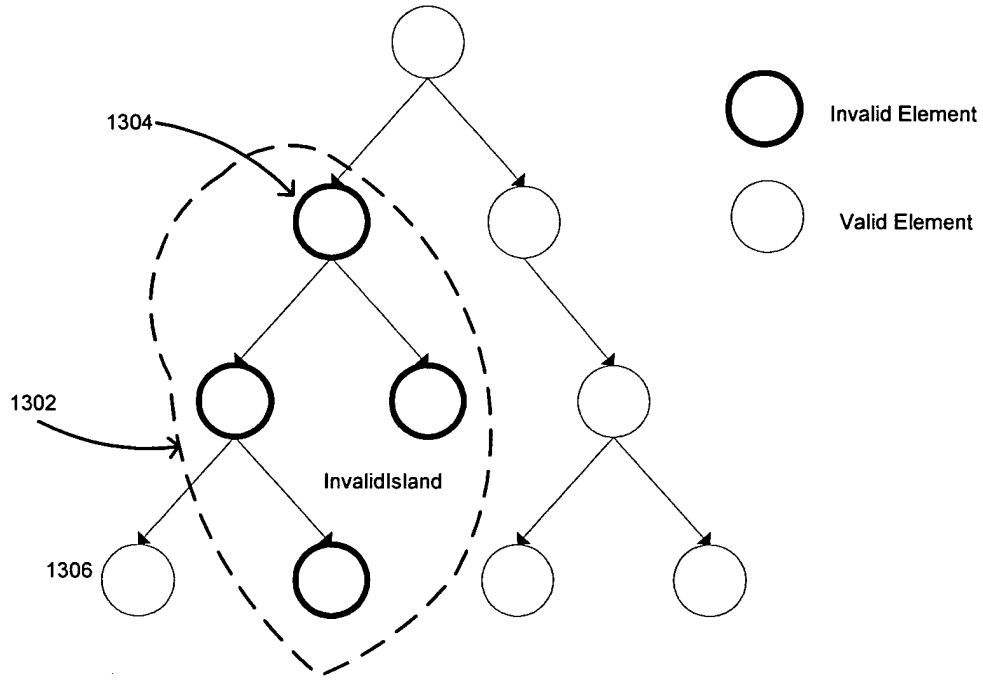

1304
1302
1306
InvalidIsland
Invalid Element
Valid Element

FIG. 13

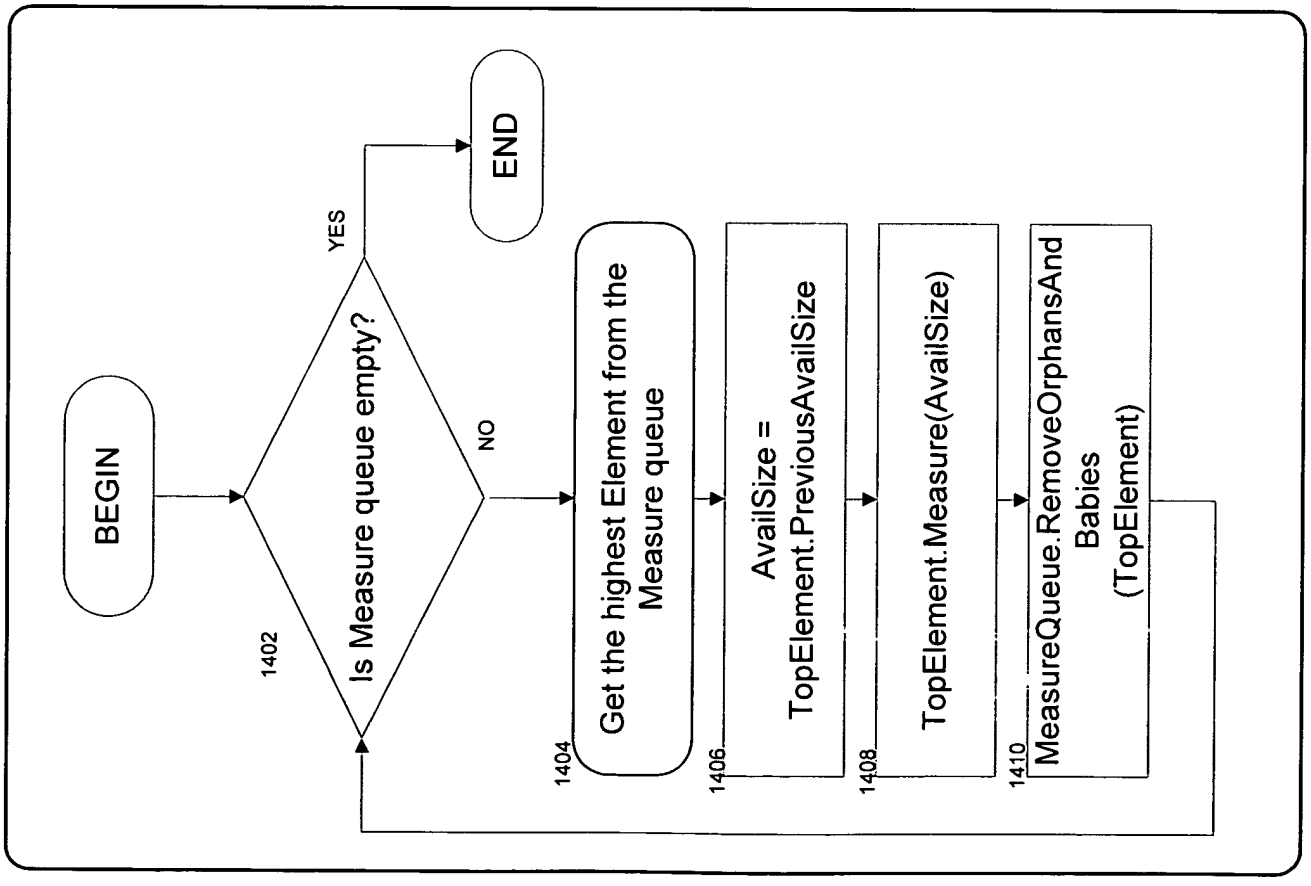


FIG. 14a

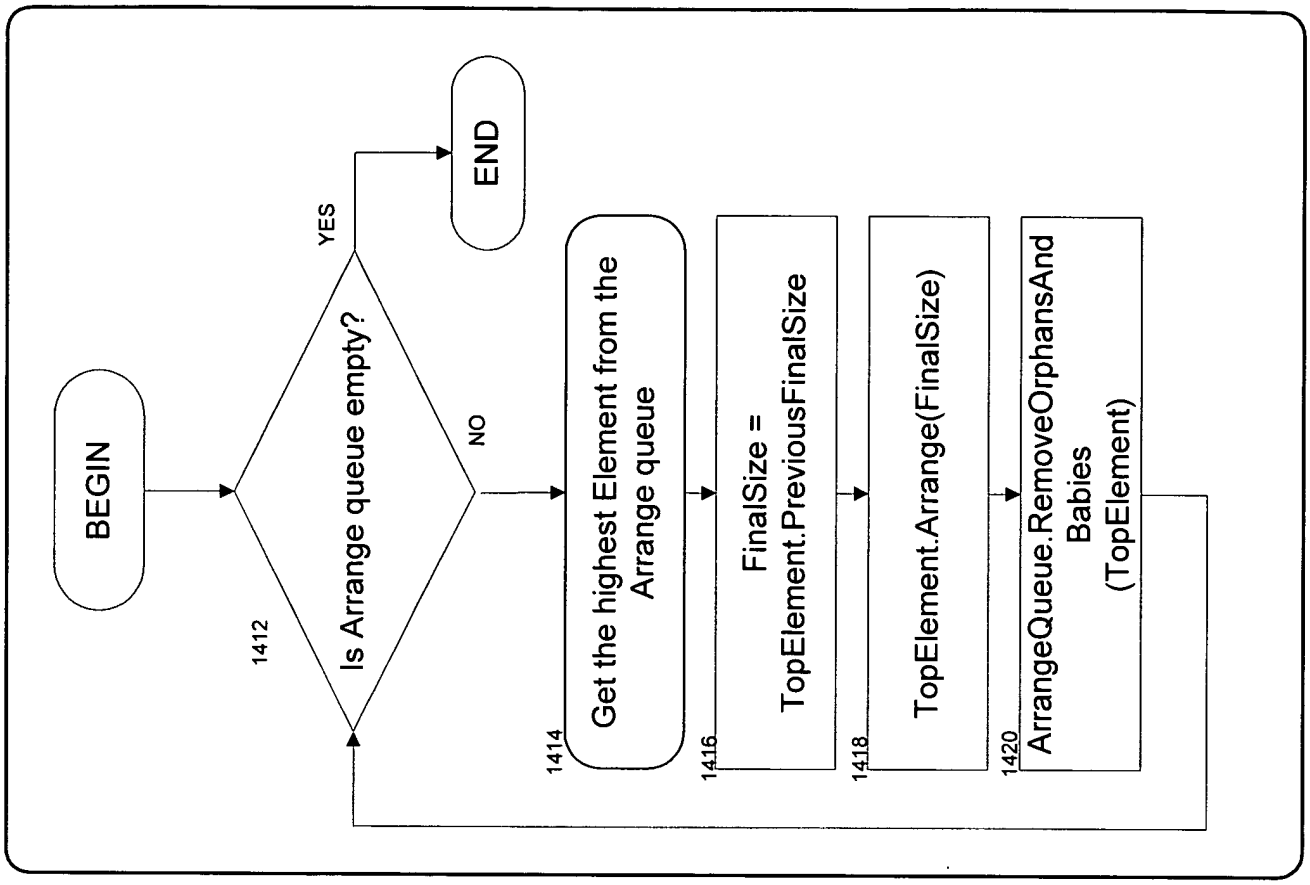


FIG. 14b

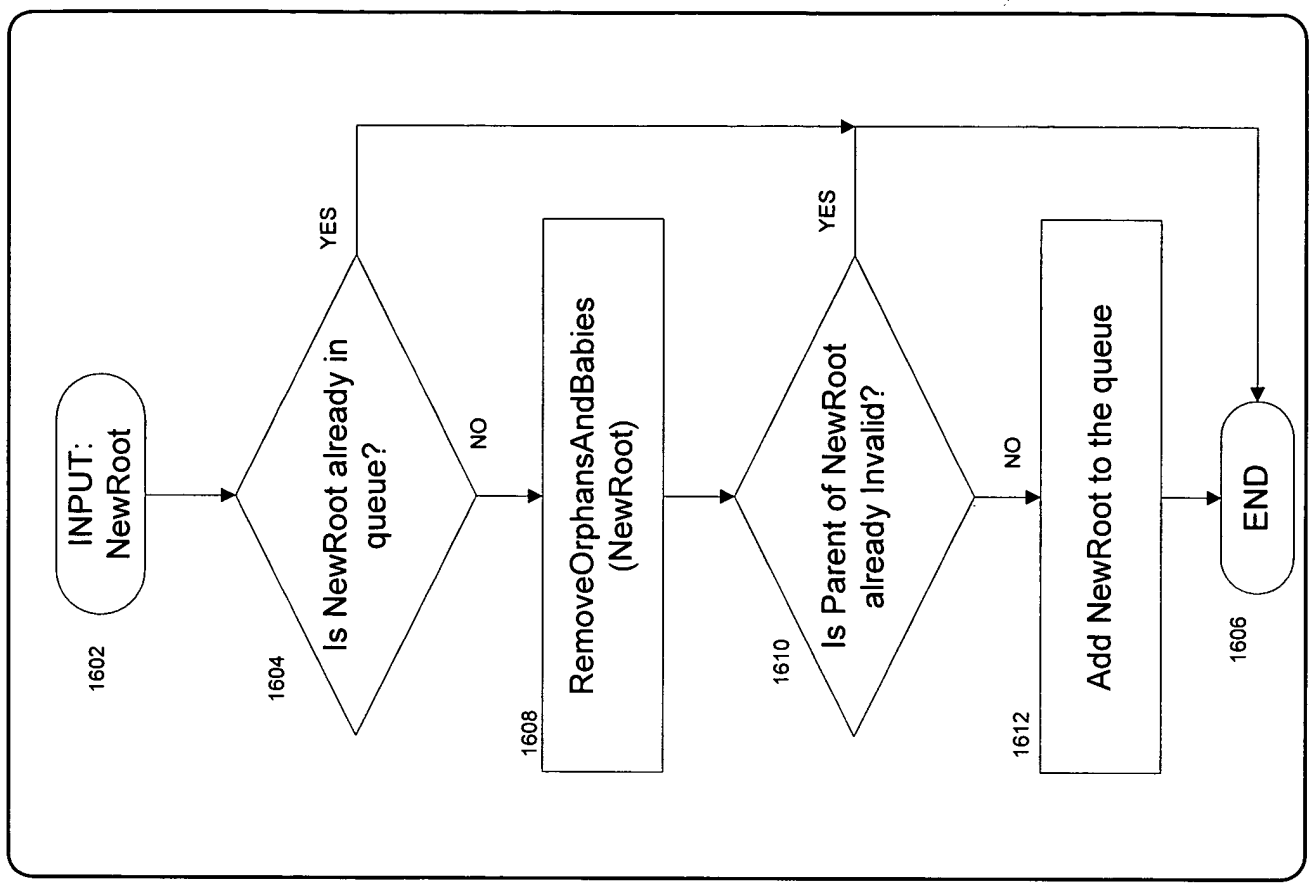

INPUT: NewRoot
1602
Is NewRoot already in queue?
1604
YES
NO
RemoveOrphansAndBabies (NewRoot)
1608
Is Parent of NewRoot already Invalid?
1610
YES
NO
Add NewRoot to the queue
1612
END
1606

FIG. 16

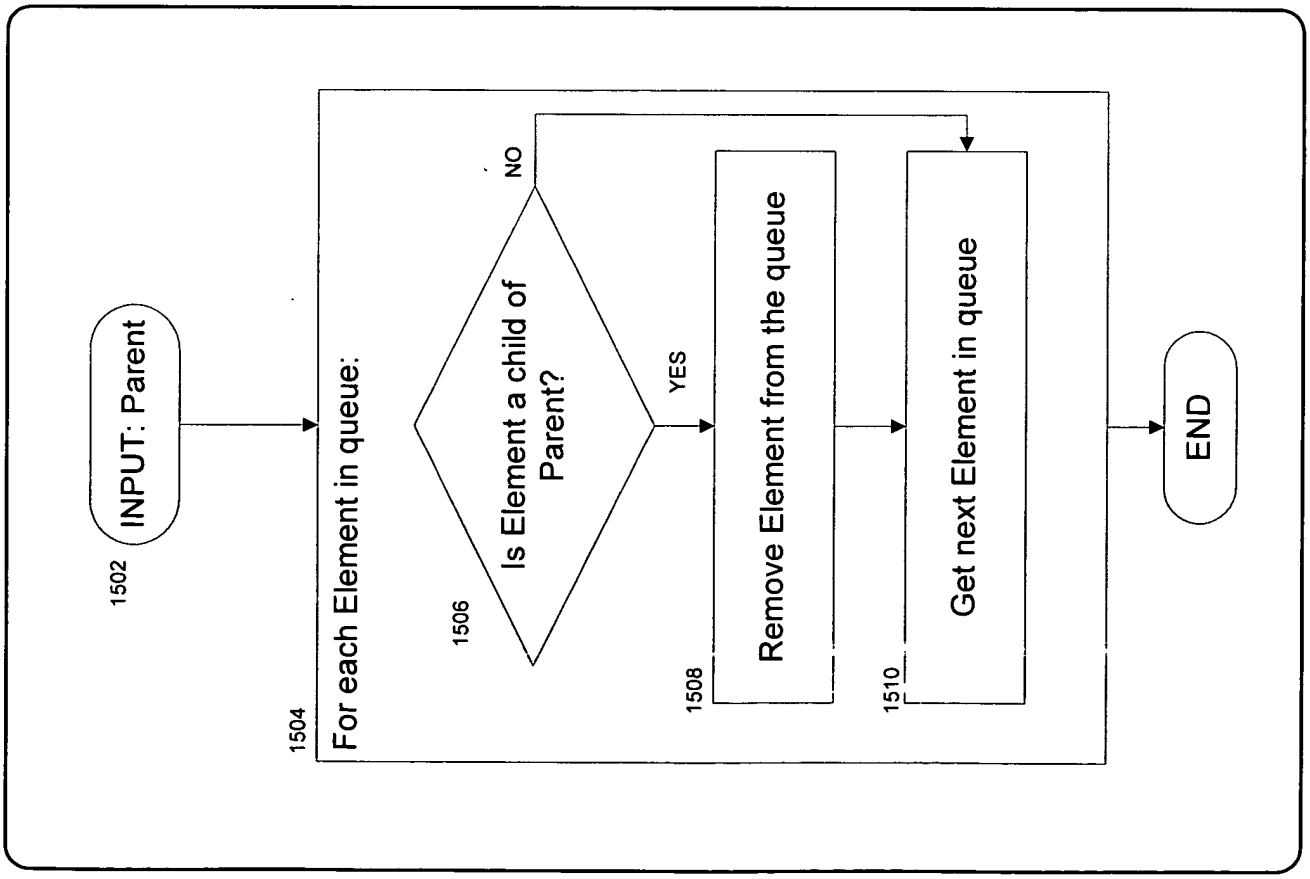

INPUT: Parent
1502
For each Element in queue:
1504
Is Element a child of Parent?
1506
NO
YES
Remove Element from the queue
1508
Get next Element in queue
1510
END

FIG. 15

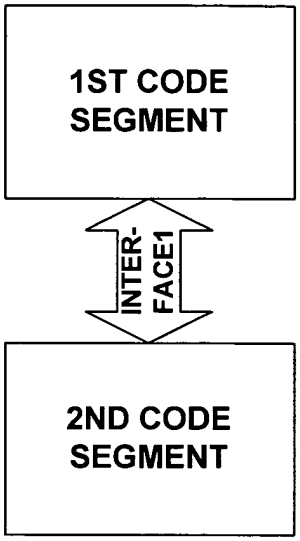


FIGURE A1

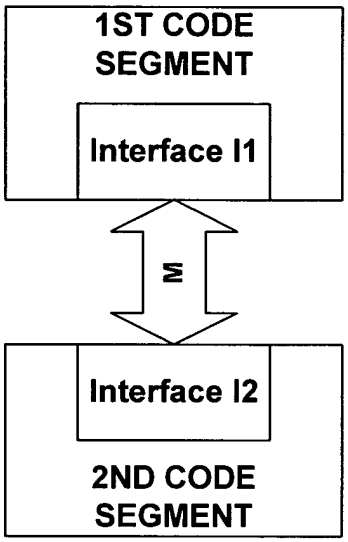


FIGURE A2

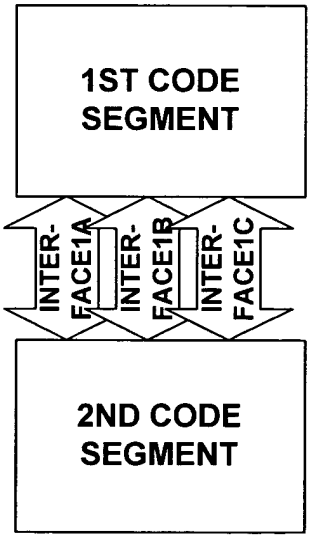


FIGURE B1

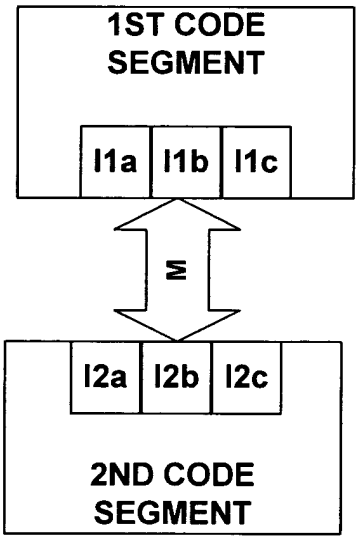


FIGURE B2

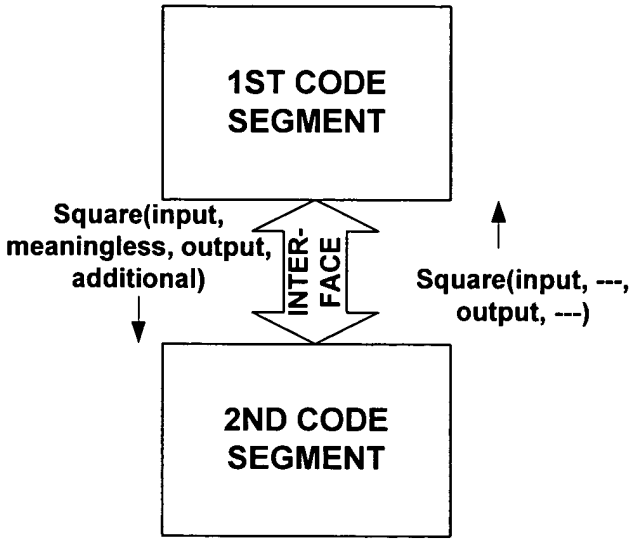


FIGURE C1

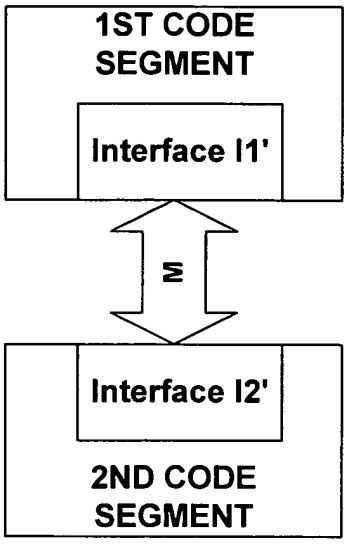


FIGURE C2

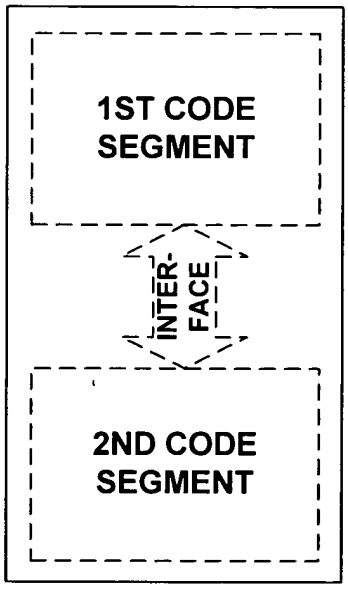


FIGURE D1

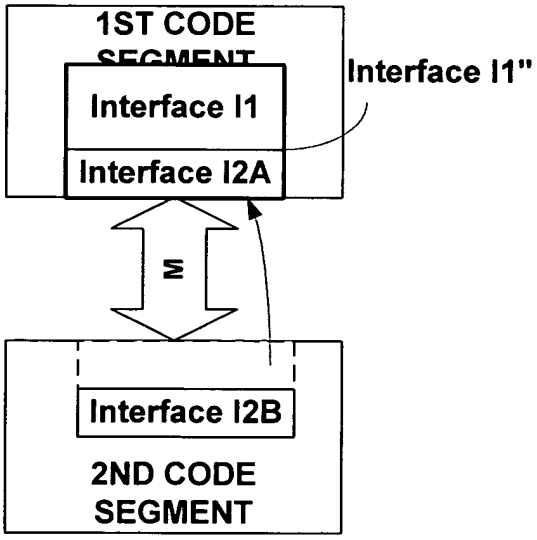


FIGURE D2

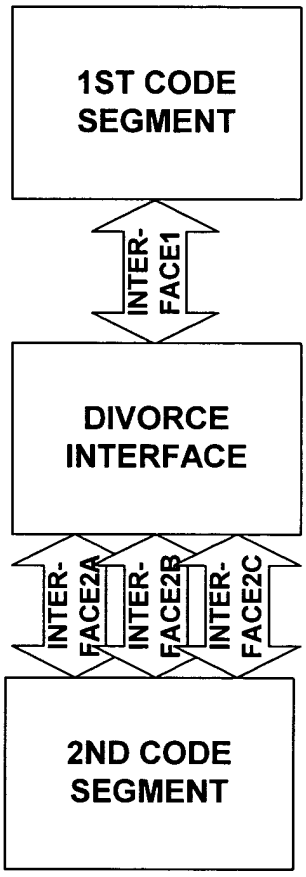


FIGURE E1

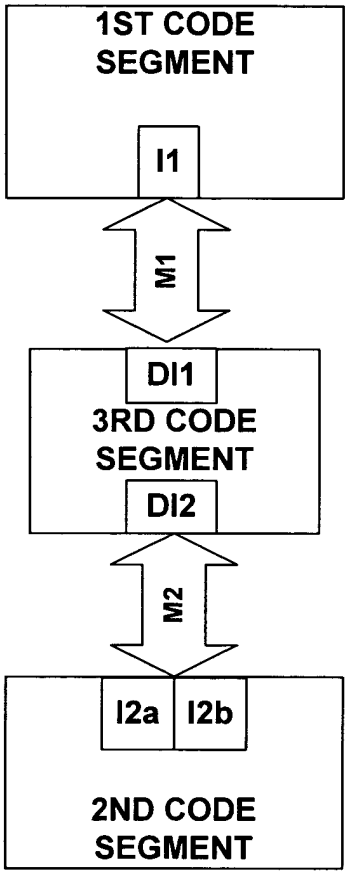


FIGURE E2

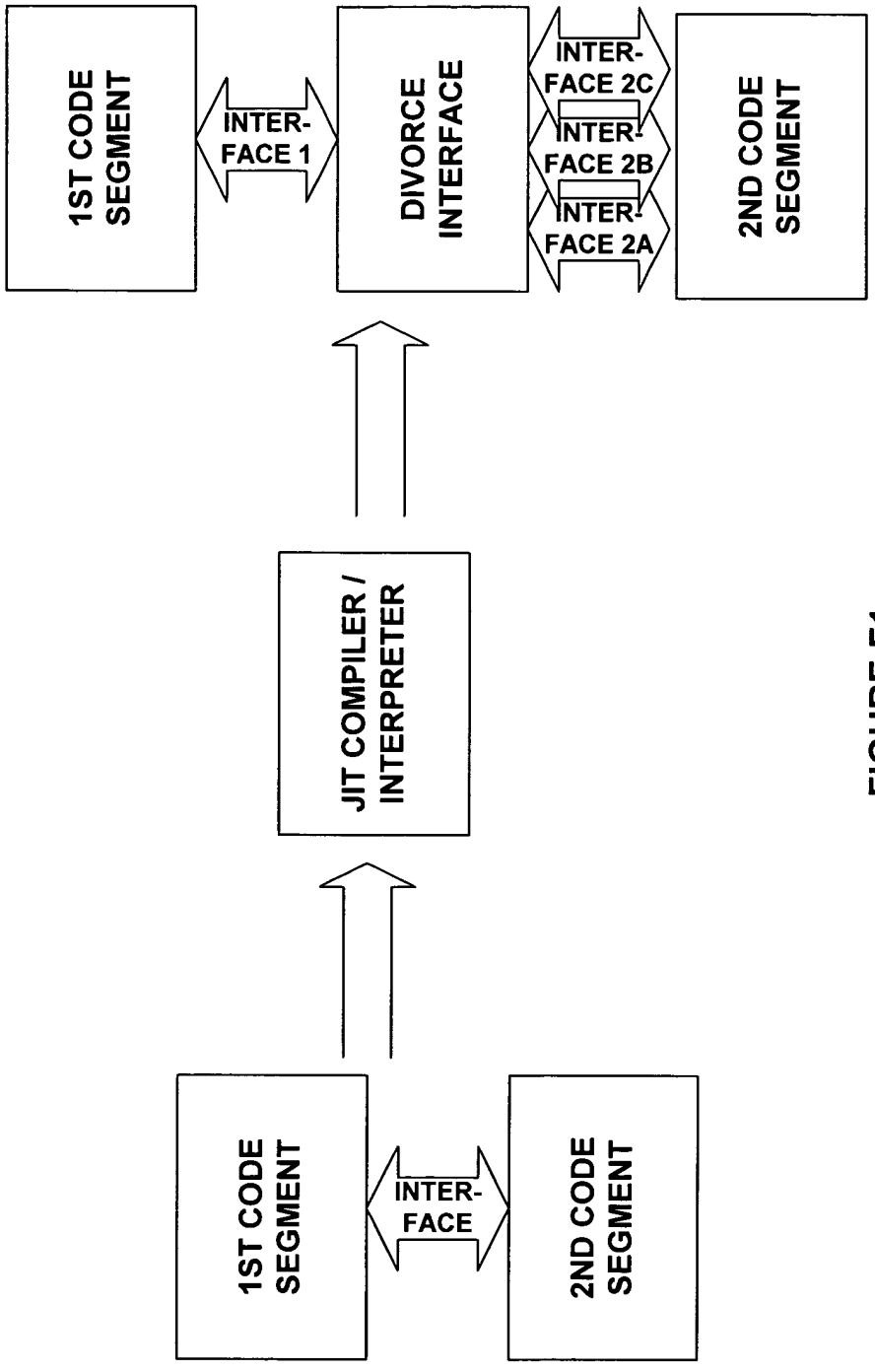

1ST CODE SEGMENT
INTER-FACE 1
DIVORCE INTERFACE
INTER-FACE 2C
INTER-FACE 2B
INTER-FACE 2A
2ND CODE SEGMENT
JIT COMPILER / INTERPRETER
1ST CODE SEGMENT
INTER-FACE
2ND CODE SEGMENT

FIGURE F1

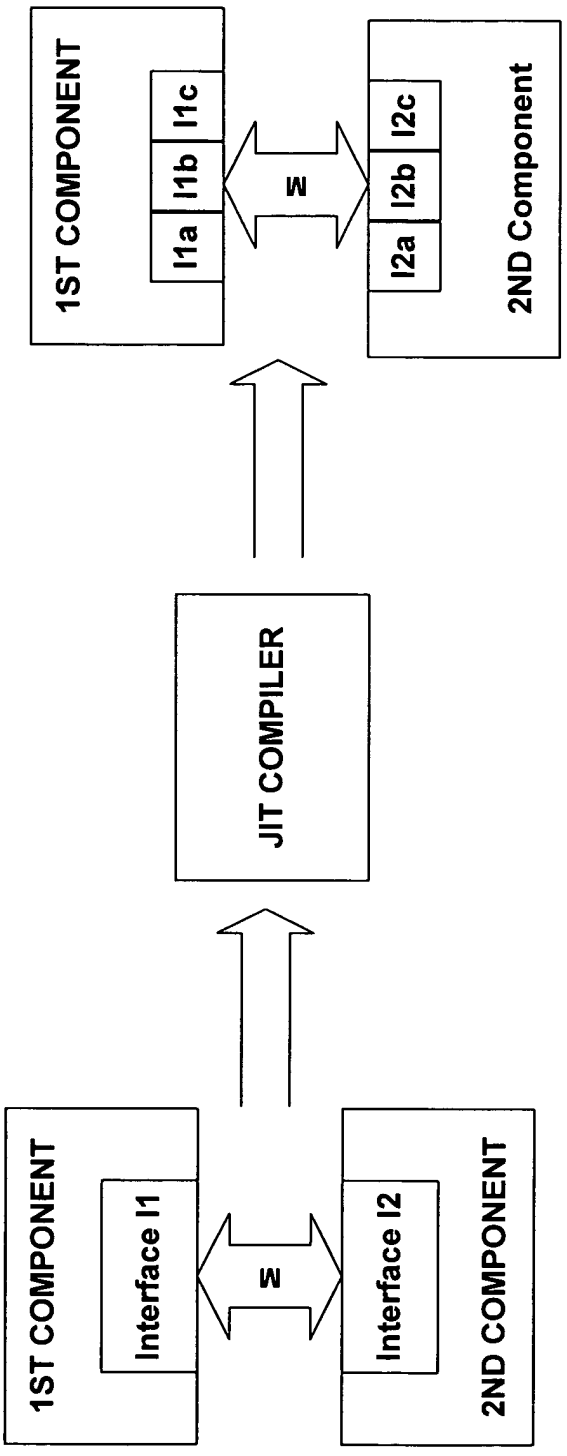

1ST COMPONENT
I1a
I1b
I1c
W
I2a
I2b
I2c
2ND Component
JIT COMPILER
1ST COMPONENT
Interface I1
W
Interface I2
2ND COMPONENT

FIGURE F2